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ABSTRACT

Guidelines for the transporting of physically handicapped children to school are given along with the types of vehicles, selection and training of drivers, problems of traveling time, and administration and financing of a transportation service. Vehicles described and compared include standard school buses, adapted buses, vans and compact buses, taxis, automobiles, and station wagons. The qualifications, selection, duties, and responsibilities of motor vehicle drivers are outlined. A reference list and appendix is included. (TG)

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HUMAN RESOURCES STUDY NUMBER 10

The Modification of Educational Equipment and Curriculum for Maximum Utilization by Physically Disabled Persons

The Transportation of Physically Disabled Students

Harold E. Yuker
Martin A. Feldman
Arthur C. Winick
Myrna Lewis

1967

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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HUMAN RESOURCES STUDIES

*1. Slipyan, A. Scope of study of the history and changes in disabled workers functioning under competitive industrial conditions, 1958.

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*3. Campbell, W. J., Leizer, R. R., & Yuker, H. E. A study of the adaptability of disabled workers, 1958.

*4. Slipyan, A., & Yanover, R. R. Continuing medical research programs, including a study of the effect of competitive industrial activity on the traumatic paraplegic, 1959.

*5. Yuker, H. E., Block, J. R., & Campbell, W. J. A scale to measure attitudes toward disabled persons, 1960.

6. Yuker, H. E., Block, J. R., & Campbell, W. J. Disability types and behavior, 1962.

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FOREWORD

This present series of monographs represents a significant departure in the publications of the Human Resources Center. Up to this point the Center's monographs have been descriptive and attitudinal studies concerning the disabled worker. In contrast to these, the present series of six monographs are reports relating to the education of severely physically disabled children.

Although these reports have a wide perspective they focus on Human Resources School. This school has been one of our most successful experiments. We feel that it is important to provide others with information about the school, as well as information about other major successful attempts at educating physically disabled children. This series of monographs attempts to integrate the available information in this area.

The United States today is placing more emphasis upon better education for all. With this emphasis, the education of the severely disabled child, formerly considered homebound, has become increasingly significant. It is our hope that the information contained in this series will contribute substantially to the improvement of the quality of education offered to disabled children throughout the United States and the world so that they can become independent and productive citizens.

Henry Viscardi, Jr., LL.D., L.H.D.
President
Human Resources Center

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This series of monographs on the education of the severly disabled child is the result of the contributions of many people. Special recognition must be given to the faculty of Human Resources School for their important advice and meaningful criticisms, and the Human Resources research staff for their continuous cooperation. Without the help of all of these people, this series would not have been possible.

The authors would like to especially thank Frank D. Gentile and Richard M. Switzer for their active contribution and guidance in the preparation of this study on transportation.

PREFACE

The purpose of this series is to provide a comprehensive source of information pertinent to the education of physically disabled, intellectually normal children. The information presented should help those concerned to provide these children with an excellent education. A secondary purpose is to stimulate educators to think about problems that arise in educating physically disabled children, and to attempt to formulate their own solutions to these problems.

These publications are designed to fill a need for information about the education of physically disabled children. This need for information has been expressed by everyone from the school superintendent and the local school board to the classroom teacher and the physical and occupational therapists. The information explosion has not yet reached into this area. While many persons have worked out ingenious solutions to problems that arise, these solutions have not been publicized. There is a lack of communication. Someone, somewhere has probably solved any given problem, but few people know of the solution. Ultimately the regional curriculum centers in special education will provide this information. In the interim, the present series has been designed to "spread the word."

Thus, these publications are designed to serve as a preliminary, concise handbook of information about the education of physically disabled children. They present information about a wide variety of topics of interest to special educators. The material has been obtained from a number of sources. Much of it comes from a relatively extensive review of the literature. Over 800 books, articles, pamphlets, etc. were reviewed. Other information came from interviews with leading educators in various parts of the country.* Others, whom we were unable to visit made their contributions in writing.

The series of reports has been organized into six topics, each dealing with a major aspect of the education of disabled children. The discussion of each topic includes a general introduction, a series of problem areas each with a solution or solutions, a summary, and a list of references. The problems covered are generally those of greatest concern in the field; the ones most

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*The authors would like at this point to formally express their thanks to the many persons who so willingly shared their information with us. Much of the information and inspiration in this series stems from these persons. While a complete list of persons who gave of their time is not appropriate here, it can be found in the Appendix at the end of each volume.

apt to arise when two persons concerned with the education of physically disabled children get together. The solution that is given is based on information obtained from the sources described above. It represents our interpretation of the thinking current in the field today. In some cases, when more than one solution is discussed, it may indicate either that there is disagreement among the experts, or that the authors disagree with the experts. In such cases, the reader is invited to draw his own conclusions which he should do anyway, even where only one solution is given. In other instances, the solutions presented represent alternatives for coping with various specific situations. The purpose of this series is as much to get people to think and come up with their own solutions as it is to provide ready-made solutions.

The bibliography at the end of each monograph is in some respects the most important part of the series. It lists the primary sources that provide the important details that were omitted from the present publications. In organizing this series a choice had to be made between breadth and depth. We decided to attempt to present a broad picture of the education of physically disabled children, sacrificing depth of presentation in the process. The depth can be provided by use of the references.

Both the solutions, and to a lesser extent the problems are permeated by the educational philosophy of the authors of this series. This philosophy can be expressed as a series of assumptions:

1. Good education is defined in terms of external criteria, and is judged according to these criteria. The principal goal is providing maximal educational opportunities to each individual regardless of whether he is disabled or non-disabled.

2. It is desirable for disabled persons to attend integrated schools whenever possible.

3. Facilities and curricula should be planned for optimum use by all students.

4. Specific individual needs should be provided for to the extent possible within the confines of statement #3.

5. Many of the special adaptations for disabled students can be useful for non-disabled students as well.

It is realized that some of these assumptions are arguable - and their pros and cons are discussed in the series. Nevertheless, it is important that the assumptions be understood since they will enable the reader to discount some of the biases that appear throughout the series.

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INTRODUCTION

The transportation of children to school is a major concern of school systems throughout the country. Should children walk, use public transportation, or ride on special school buses? Which children should use which mode of transportation? Transportation is frequently a problem for parents as well as for the school system. If the child usually walks to school, under what conditions should the parents serve as chauffeurs; how hard need it be raining for the child to be driven to school?

The problem of transporting disabled children to school is even more complex. There is the problem of getting the child to and into the vehicle. There may be the problem of a wheelchair or litter; should it be transported or left at home? There may be problems related to the length of the ride to and from school.

A variety of solutions to these problems have been proposed and used. Many school systems have found one particular solution to be quite satisfactory. However, most solutions have both advantages and disadvantages. What is appropriate under one set of conditions is inappropriate under other conditions. In this monograph a number of problems and proposed solutions will be discussed. Among the specific aspects of a transportation system to be considered are the type of vehicle to be used, the selection and training of drivers, the problem of time spent in travel, and the administration and financing of the operation.

THE VEHICLE

One of the primary considerations for setting up a workable transportation system is the type of vehicle that is to be used. The vehicles that are used by agencies concerned with the physically disabled include standard school buses, specially adapted vehicles, and regular automobiles and station wagons. Some agencies such as the Student-Rehabilitation Center at the University of Illinois and Human Resources School in Albertson, New York use specially adapted buses equipped with hydraulic lifts to transport disabled students. As in any situation involving the transportation of a sizable number of passengers, the size and capacity of the vehicle are extremely important (Fink, 1962). In addition, factors such as safety, comfort, and liability become paramount when the students to be transported are disabled.

In attempting to determine the suitability of a particular vehicle, one must consider the relative advantages and disadvantages of each. The guiding dicta in the selection of the vehicles should be based on the principles of efficiency, practicability, and economy. In the following paragraphs the advantages and disadvantages of each of the major types of vehicles used in transporting disabled children will be discussed. Each discussion will contain information relating to the efficiency, practicability, and cost of that particular mode of transportation.

A. Standard School Buses. Buses that are the same as those used to transport non-disabled school children are employed by a number of schools to transport disabled children (Chicago Board of Education, 1964; Fink, 1962). The major advantages of this type of vehicle are its ready availability and its large load capacity. The standard school bus can carry from 48 to 66 students. By removing some of the seats standard buses can carry from 8 to 14 wheelchairs although they are most satisfactory when used for the transportation of ambulatory or semi-ambulatory persons. With other disabled students, they are apt to give rise to problems.

When standard school buses are used to transport students who are confined to wheelchairs or litters, one problem that immediately arises is what to do about the wheelchair. Since such buses have no space for the chair, it would have to be left at home, and a second chair would have to be provided at the school. This would involve an additional cost either to the parents or to the school, and could create problems of wheelchair storage and maintenance.

A second problem centers around the need for lifting the child and his books and equipment into and out of the bus. This can be done either by the bus

driver, by a special attendant who rides the bus, or by a member of the child's family at home and by school personnel at the school. Carrying the child on and off the bus is inconvenient, takes time and can be dangerous. The cost of an attendant may prove to be a financial burden unless volunteer attendants are obtained. However, in any case, the problems of insurance and liability in the case of personal injury remain. Besides the legal technicalities encountered as to whether a driver or attendant should bodily pick up a passenger, the chances of personal injury to the attendants or students are greatly increased (Fink, 1962; Wortis & Margolies, 1955).

Another disadvantage is of a psychological nature. As Fink (1962) states, "the dependence upon an attendant or other able-bodied person to provide transportation assistance in many cases is the antithesis of the rehabilitation concept and often detrimentally reinforces the idea that it is necessary to cater to a disabled group" (p. 12).

Even when the bus is used for partially ambulatory students there are apt to be problems. The student on crutches will probably have difficulty getting up and down the steps. While this may provide useful training, it will be time consuming. Furthermore, care must be taken to provide for the safety of the children. While seat belts are important in all school buses, shoulder harnesses would seem to be called for in transporting disabled children lacking in physical control.

B. Adapted Buses. The adapted school bus is similar to a standard bus with a number of modifications. Although its load capacity is somewhat smaller, it is capable of carrying approximately 8-14 wheelchair students along with approximately the same number of additional passengers. A major purpose of the modifications is to provide a suitable and efficient means of entrance and egress for students in wheelchairs. One basic method of adapting the school bus, originally conceived of by T. Nugent at the University of Illinois, is the provision of specially designed hydraulic lifts. Buses so equipped are commercially available, but are more expensive than standard buses. The lifts which may be located at the front, side, or rear of the bus, rise vertically bringing a child in a wheelchair from ground level to the floor level of the bus. Schoenbohm (1962) points out that the lift may be installed at the rear of the bus by removing the back seats. The lift is lowered from the rear door so that a child in a wheelchair can be rolled directly into the bus. The bus at Human Resources School has a side lift with grab rails at either side. It is of interest to note that the Human Resources School bus was the first to be modified with a metal ramp hinged to the lift since none existed before. Figure 1 illustrates an adapted school bus with lift in use.

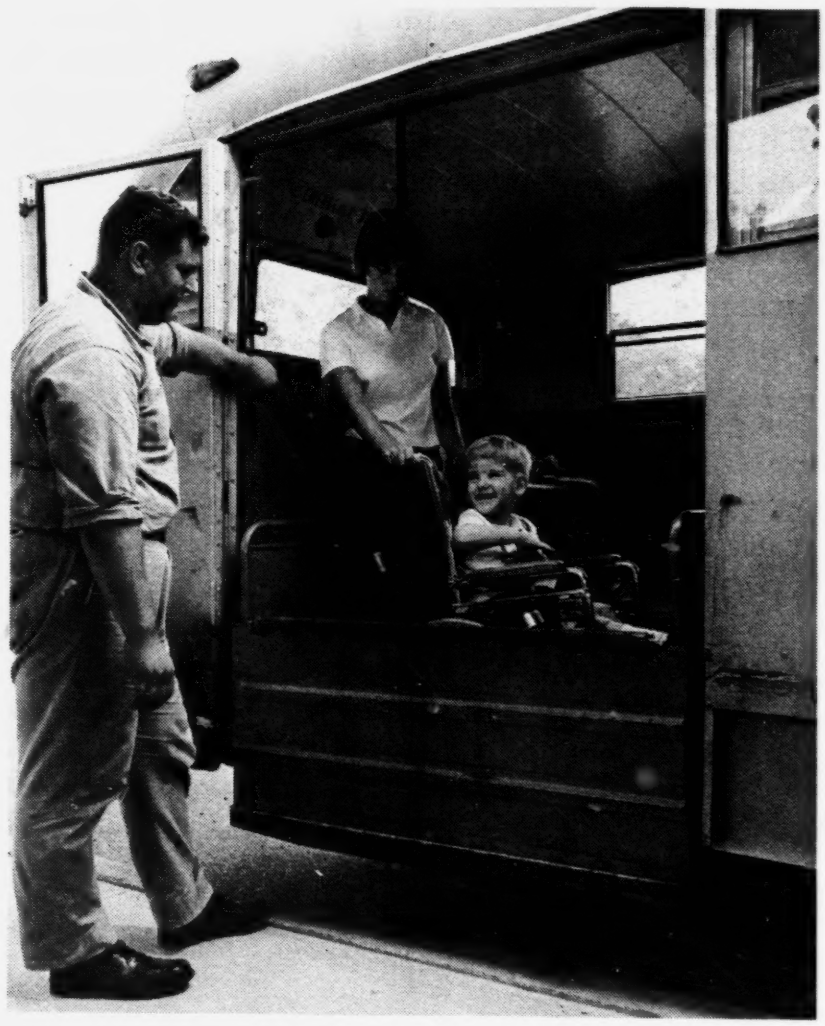

FIG. 1. An adapted school bus with lift in use. The vertical portion of the lift flattens upon contact with the ground so that the child may have a smooth ramped means of access to the lift. The vertical rails on either side of the lift platform are for safety and support. A volunteer student aide is assisting the youngster.

The platform of the lift is usually about 28 inches by 51 inches and has a load capacity of 700 pounds (Superior Coach Corporation, 1967) so that it can hold both a wheelchair and attendant if needed. While lifts of the type shown in Figure 1 are safe, those unequipped with a fold-down ramp or protective molding may be somewhat dangerous if the wheelchair begins to roll. Either the chair must be held steady or the brakes applied.

The system of installing hydraulic lifts developed and used by the Student-Rehabilitation Center (SRC) at the University of Illinois is described in detail by Fink (1962). He indicates that this system is one in which no attendants are required. Thus, Fink points out that "no liability is assumed beyond that which is common to drivers of commercial buses" (p. 12). This method has been shown to be successful with disabled college students, but its feasibility and safety

with younger disabled school children has yet to be demonstrated. Fink states that in the SRC system, even the most severely disabled individual is capable of independently getting from ground level to a riding position within the bus or vice versa, in less than 20 seconds because of the design of the lift. This method makes the students more self-reliant and eliminates the idea that one must cater to a disabled person.

In addition to the modifications relating to the ingress and egress of students, interior modifications are usually necessary. If wheelchairs are loaded on buses, space must be provided for them. In one modification, described by Fink (1962), all but 14 seats are removed from the bus. This allows ample room for the student to board and either position himself or be positioned for travel. The experience at Human Resources School indicates that the bus should be equipped with brackets for fastening safety belts which encircle both the child and the wheelchair. The wheelchair could be further secured in place by the use of wall or floor clamps which would lock over the wheels of the wheelchair. Another possible method for securing the wheelchairs is to provide special "wells" in the floor of the bus into which the wheels of the wheelchairs are fitted and securely braced (Voelker, 1958).

There is some controversy regarding the need for internal safety devices in buses. For example, the Institute of Rehabilitation Medicine, New York City, uses wells with clamps for securing wheelchairs in its buses, as mentioned above. On the other hand, at the University of Illinois, where the passengers are college students who travel short distances, there are no specific safety devices within the bus. For long runs wheelchairs are wedged together to prevent forward and backward motion, according to University of Illinois personnel. It would seem to be desirable to determine which safety devices are most important to the safety of the specific persons who use the school bus. The authors have come across no comprehensive study dealing with this aspect of transportation. Those features which appear necessary or desirable and which have been used successfully are mentioned in the various sections dealing with specific vehicles.

At Human Resources School several safety devices are used and have been found adequate. Steel locking devices fastened to the walls of the bus hold each wheel of the wheelchair. Seat belts attached to the walls are also used. In the vans, chains and belts are used to hold wheelchairs in place while seat belts hold the child. Each of the devices takes up space in the vehicle but this concession must be made for safety. Figure 2 shows the interior of an adapted bus with wheelchair secured and seat belt positioned around chair. Figures 3 and 4 illustrate the use of chains and seat belts in vans. Both rear and side entry doors are shown.

C. Vans and Compact Buses. The van or compact bus (e.g., Ford Econoline, Chevrolet vans, etc.) is another type of vehicle that can be readily adapted for use in transporting disabled students. These vehicles are presently being used for transporting disabled persons by several commercial firms throughout the country (Fink, 1962). Vans are the same length or slightly shorter than standard automobiles and are of box-like construction. They are commercially available in two types of design, either with the engine in the front or the rear. Of the two, the front engine design appears to be best suited for the transportation of the disabled. Vans are equipped with wide double doors on the side and rear, which allow for easy loading and unloading. Figure 5 shows a van with the ramp in use.

FIG. 2. Interior of an adapted bus with wheelchair secured and seat belt positioned around chair. Clamps mounted on the wall of the bus secure both rear wheels of the wheelchair while the seat belt, also wall mounted, holds the child firmly in place.

Vans may be modified in a number of ways to suit the needs of the disabled. They can be equipped with portable fold-out ramps, which enable the passenger to get in and out of the vehicle (Handi-Ramp, Inc., not dated). Since the ramp is steep, the driver or an attendant must assist the passenger in negotiating the ramp. As a result, the loading and unloading operation is frequently time consuming. A number of other possible modifications, some of which are still in the experimental stage, are described by Bray and Cunningham (1967). Among these is the use of air suspension and other leveling systems which allow one end of the vehicle to be lowered to the pavement or curb, permitting direct access. Leveling systems and the several other methods described and illustrated by Bray and Cunningham are geared toward independent entrance to and exit from the vehicle by a disabled person. Alternatively, portable lifts or wheelchair elevators which are commercially available may be used to unload students at the school. The lift would be located at curbside directly

FIG. 3. Chains and seat belts secure wheelchairs and passengers in adapted van. In addition, a 2x2 beam placed on the floor of the van holds the wheelchair steady.

adjacent to the doors of the van enabling the student to disembark independently. The presence of an attendant is desirable where young children are involved (below age 12), since this might appreciably speed up the unloading process (Wheelchair Elevators, Inc., not dated).

The capacity of a van or compact bus is limited in that it usually can carry a maximum of six passengers in wheelchairs. Pomeroy (1964) points out that the load capacity of these vehicles is greatly increased when used for semi-ambulatory students since they may then accommodate from 12 to 15 persons. Pomeroy has suggested that in using these vehicles wheelchair bound persons can be placed in regular seats, and the chairs can be stored enroute in specially constructed racks on the roof of the vehicle. The racks should be long enough and high enough to safely store 8 to 10 wheelchairs. One difficulty with this procedure is that storing the chairs is apt to be very time consuming. Another diffi-

FIG. 4. Side entry door by which students may enter or leave adapted van. Here, too, chains and seat belts secure wheelchairs and passengers.

culty is that placing the chairs on top of the van and taking them down is apt to be physically demanding. This type of vehicle can most effectively be employed by schools with small enrollment where the student load does not warrant the use of a larger vehicle. In the case of schools with a large population of disabled students, this type of vehicle can be used as an adjunct to large buses for transporting a small number of students located in one area that is geographically isolated from other areas.

FIG. 5. Van with ramp in use. The steep incline of this ramp necessitates an assistant's help in entering and leaving van.

D. Taxis. A number of school districts, such as Oakland City Unified School District in California (Skyline High School), use taxi cabs either as a primary or ancillary means of transportation (O'Brien, 1961). Some have found the contractual use of taxis to be a practicable solution, especially where the time element is important or where children are geographically isolated. In addition, taxi cabs offer a more flexible type of scheduling and can be readily adjusted to last minute demands.

One of the major drawbacks in the use of taxi cabs is that they are expensive. But in some instances (particularly with small schools) when other costs such as insurance, the employment of competent drivers, cost of vehicle maintenance, etc. are considered, it is more economical to use taxi cabs than to own vehicles or to use other modes of transportation (Gore & Outland, 1965; Oakland Unified School District, 1967; Schweitzer, 1955).

In cases where schools do not have their own transportation facilities, a cab, preferably radio controlled, should be available on demand. The cab can be used for emergencies that make it necessary to transport a child either to his home or for medical attention not provided by the school. It should be noted that while most taxis are standard automobiles, vehicles such as Checker cabs, with a larger passenger compartment and high roof might be better suited for disabled children. This type of car permits wheelchair storage in the rear seat area rather than in the trunk. If this is done, the wheelchair should be securely fastened to prevent its moving while the car is in motion. Alternatively, the passenger may ride in the wheelchair in the rear compartment which would allow space for an attendant or passengers. Some vehicles have special features such as high, wide 180 degree swing doors, wheelchair tie-downs, and ramps (Checker Motor Sales Corporation, 1967).

E. Standard Automobiles and Station Wagons. The use of standard automobiles and station wagons is another popular means of transporting disabled students. They have been used with much success in some programs and have proved to be very unsuccessful in others (Pomeroy, 1964). Where small groups are to be transported, parents have formed car pools to transport their children. However, experience indicates that this method has not been very satisfactory for several reasons. Probably the greatest drawback in the use of standard automobiles is small load capacity. Too, the disabled student either must transfer himself from his wheelchair to the auto seat or must be lifted and placed in the vehicle. The negative aspects of lifting the child have been discussed previously. As an alternative, Fink (1962) suggests that the difficulty of lifting the child could be overcome through the use of mechanical lifts. These are commercially avail-

able and could be attached to the automobile roof to assist in the transfer of the passenger (Corporation for Medical Engineering, not dated; Ted Hoyer & Company, not dated). However, such equipment tends to be expensive, cumbersome, and time consuming to use.

Station wagons have also been used and are favored by some schools or agencies since they offer a greater load capacity. Their use is preferred where small groups are involved. Load capacity can be increased by carrying folded wheelchairs in a rack on the roof of the vehicle as has been previously mentioned, thus leaving the interior free for additional passengers.

A major drawback in the use of standard automobiles and station wagons is that the loading and unloading process is very time consuming. It is recommended that the most practical application of automobiles and station wagons is in their use for emergency transportation.

F. Relative Costs. The type of vehicle best suited for a specific institution depends on such factors as number of children served, how many are in wheelchairs and litters, geographic distribution of students, etc. In many cases, a combination of vehicles is needed to serve the transportation requirements of a school. For example, at Human Resources School most of the children are transported to and from school in vans described in Section C above, while others (ambulatory students) are picked up in the school station wagon. A full-size adapted bus capable of carrying 13 wheelchair students and 10 ambulatory passengers is used for field trips and outings. Similarly, the Institute of Rehabilitation Medicine uses two buses of different capacities and a station wagon for short trips with a few passengers.

Generally, a standard school bus is the most economical vehicle for transporting large numbers of students (approximately 25 or more). Adapted school buses with hydraulic lifts usually cost approximately one thousand dollars more than standard buses. Even so, adapted buses may be more economical in the long run because of the time saved and the convenience provided in getting children on and off the bus. Vans and compact buses are relatively inexpensive and need a minimum of modification (a portable ramp and wheelchair fastening devices usually suffice) for carrying disabled students. Here, several vehicles may be necessary since the capacity of vans is four to six wheelchair students or 12 to 15 ambulatory students.

While there is no initial outlay for taxis and they are economical in terms of vehicular maintenance and insurance, the cost per mile may be prohi-

bitive for regular use. Finally, the applicability and practicality of standard automobiles and station wagons must be determined by the needs of specific schools. In general, these vehicles are relatively inexpensive but have limited utility for wheelchair and litter bound students.

THE DRIVERS

In transporting disabled students, the selection, orientation, and training of drivers is of particular importance. Character, personality, and resourcefulness must be considered along with ability to drive (Pomeroy, 1964). Drivers will be required to perform a variety of tasks in addition to transporting the children, and their ability and willingness to perform these tasks must be considered. In this section we shall discuss the qualifications for drivers who transport disabled students, their selection and training, and their duties and responsibilities.

A. Qualifications - Selection. For an applicant to qualify as a driver for the disabled, he must meet certain minimum qualifications. These have been reported by Fink (1962) and Pomeroy (1964) and include such factors as age and health, a knowledge of first aid (a Red Cross first aid certificate is recommended), driving ability and skills, etc. Experiences should include two years of successful full-time paid employment in driving commercial or heavy duty vehicles, experience with children and a safe driving record. Connor (1958) also mentions awareness of and willingness to conform to the objectives of the child's therapeutic needs. The individual should be able to develop and maintain rapport with children and have the ability to maintain a calm and even disposition. He must be able to exercise mature judgment in relation to both driving and child care and must be able to maintain order on the bus.

The driver should have a knowledge of the motor vehicle and education codes, particularly as they relate to the operation of vehicles transporting disabled children. He must be knowledgeable about safe driving practices and, ideally, should have some awareness of preventive maintenance of automotive equipment, and ability to operate specially equipped or adapted vehicles and make minor mechanical adjustments of automotive equipment. In addition, he should have good knowledge of the geography of the local area, and of accessible entrances to buildings.

Finally, familiarity with the operation and use of wheelchairs, braces, crutches, and canes is also desirable. In instances where drivers meet all qualifications except for familiarity with the disabled person or his equipment, it is suggested that orientation and training be provided by the school or agency. In addition, it is also recommended that each child be exposed to a short orientation session familiarizing him with the driver and the vehicle (Gust, 1966).

It is sometimes assumed that the above qualifications are more easily met by men than by women; Pomeroy (1964) claims that men are generally more

satisfactory drivers, on a volunteer basis. However, training women as drivers for disabled children should not be overlooked. Pomeroy indicates that female drivers of the American Red Cross Motor Corps can transport severely disabled persons successfully.

B. Duties - Responsibilities. In addition to the traditional duties of school bus drivers, the driver who works with disabled children may perform a variety of other transportation-related tasks. Obviously, these duties will vary with the size and type of the transportation system that is used. Thus, along with adhering to a regular schedule of picking up and returning children and maintaining the vehicle, the driver may transport a child to his physician, therapist, rehabilitation counselor, etc. during the part of the day in which he is not driving children to and from school. This may be particularly important in rural areas. Further, since exposure to the community at large is a vital ingredient in remediating the cultural deprivation of the disabled, the services rendered by the bus drivers in transporting students on field trips to museums, concerts, recreation programs, lectures, sporting events, etc., are of utmost importance.

After the schools demands on the bus driver's services have been met, it is recommended that the driver and his vehicle be made available to the adult disabled and aged population of the community. The services of drivers and vehicles to a larger portion of the general community might reduce the expenses involved for all cooperating agencies by having each share proportionately in the cost of the program, and by more efficient use of equipment and personnel. When the drivers are not performing any of the aforementioned duties, it may be possible to have them perform non-transportation tasks within the school.

C. Volunteer Drivers. In addition to or instead of a regular driving staff, volunteer driver corps are used widely in programs for the disabled, especially in smaller cities and rural areas where parking and congested travel are not serious problems. Volunteer drivers should also be given orientation and training in handling disabled children and equipment (National Recreation Association, 1965).

While volunteers should be required to meet the same general requirements imposed upon regular school drivers, it is often difficult for the school administrator to make such demands. It is frequently unfeasible, if not impossible, to gain the same adherence to the school's regulations from volunteers as from paid employees. This is the greatest single drawback to using volunteers.

However, where there is no alternative to using the volunteers, the school administration must choose the best qualified and most cooperative candidates for volunteer positions. Further, by explicitly stating what is expected of the driver in terms of time requirements, punctuality, attendance, etc., school officials may minimize later misunderstandings. Development and use of a volunteer driver's handbook is advocated. The handbook should spell out, in detail, just what is required of volunteer personnel. In spite of the drawbacks discussed above, Pomeroy (1964) mentions several examples of the successful operation of volunteer driver corps such as American Red Cross Motor Corps, Kiwanis, Lions, and Elks committees, etc.

TRAVEL TIME

Since physically disabled children may live quite far from the school that they attend, much time may be spent in traveling to and from school, particularly when attending a "central" school for disabled children. The increased travel time cuts into the time available for school work and/or the time available for studying or recreation. Thus, the problem is: is there any way of either shortening the time spent in traveling, or of making profitable use of it?

One solution to the time problem is to have the school administrator or bus company arrange the bus routes so that no child has to ride for more than 30 minutes. In instances where children are scattered over large areas, Voelker (1958) suggests that bus schedules should be planned for relatively small segments of the total area. In such instances, smaller vehicles, i.e., Ford Econoline vans, could be used to transport the children to and from school.

Voelker also suggests the use of "feeder" routes which would pick up children in different areas and bring them to a prearranged location where they can be transferred into a larger bus which will take them to school rather than having one bus travel from home to home. This would overcome the excessively long ride of the first child to be picked up and the last to be dropped off. It may also be possible to arrange bus routes which could accommodate all children, both disabled and non-disabled, in an area where they can be transported to a central school, possibly a regular or conventional school. Shuttle buses can then be used to transport the disabled children to their schools (Voelker, 1958). This method allows for interaction between disabled and non-disabled children enroute and provides an opportunity for them to get to know one another, which can be an excellent way to overcome commonly held negative stereotypes about disabled persons. This solution has several drawbacks, however. It necessitates an additional loading and unloading operation which may be fatiguing as well as time consuming. In addition, prearranged locations for pickup require adequate shelter for children in the case of inclement weather. A third inadequacy results from the separation of the disabled children from their non-disabled peers at the point where the shuttle buses take over. This tactic may serve to reinforce differences between disabled and non-disabled children for both groups. Finally, this system might prove to be expensive because of the number of drivers and vehicles involved.

Travel time can be somewhat shortened by scheduling classes after peak traffic hours, e.g., 10 A.M. to 4 P.M., as is done at Human Resources School. This may be necessary in large urban communities where special schools and programs may be located some distance from the child's home and where heavy traffic makes traveling difficult and time consuming. One disadvantage to

this solution is that it may interfere with the student's leisure time activities, since he will arrive home at a later hour.

In instances where it is not possible to reduce the time spent in traveling, it has been suggested that this time should be profitably used. One such suggestion has been reported by Wirtz (1965). In a program for brain injured children in Philadelphia, where the route traveled is in excess of 40 miles through congested suburbs, an assistant teacher rides on the bus and teaches as they travel. Among the activities that are feasible in this situation are singing, choral speaking, hand puppetry, spelling and arithmetic bees, nature study, and social discussion.

In rural areas, where children may be situated within a radius of 200 miles or more, the best solution may be either the establishment of a residential school with children going home on weekends, or the provision of suitable foster home care in close proximity to the school.

ADMINISTRATION AND FINANCING

Transporting disabled students to and from school, cultural events, field trips, extracurricular activities, etc., entails many problems and requires some greater expense than transporting non-disabled students. Some of the considerations involved, such as driver qualifications, the types of vehicles to be used, and travel time have been covered previously. The question now arises as to how best to administer and finance a transportation system for disabled students, and how best to integrate the many factors previously mentioned to provide an efficient operation. To this end, several procedures which are in use and which are generally considered to be satisfactory will be discussed below.

A. Administration. Complexities in planning a transportation system for a large and/or scattered population of disabled students have necessitated the establishment of cooperative programs to facilitate administration. The notion of a cooperative transportation program is presently being used in such states as Illinois, Michigan, California, and New York (Lord & Isenberg, 1964). Cooperative programs entail joint agreements between two or more cooperating school districts or counties. The purpose of such programs is to reduce operating costs, administrative burdens and duplication, and to attempt to provide a highly efficient transportation program. The major advantage of such programs is achieved in cases where students must travel to a centrally located special school which serves physically disabled children from more than one district or county. A cooperative program may be established along many different lines. One approach is to establish an administrative committee with membership composed of representatives from each cooperating district. The duties of the committee members can encompass all administrative tasks, one of which is transportation. Another approach is to designate one district as sole administrator, with all districts proportionately sharing in the financing of the program.

The system used at Human Resources School is proving to be a highly efficient way of operating a cooperative transportation program for the disabled. When a child is admitted, the parent requests that the local school district provide transportation for him. Under New York State law the local district must pay for transportation within a 20 mile radius, while the Family Court allocates funds for greater distances. Thus, Human Resources School supervises the operation of the one transportation company with which it deals, but the school is not responsible for the financial aspects of transportation.

Where cooperative programs are not feasible or practical, the program may require the services of a full-time or part-time transportation coor-

dinator. The time required to perform this coordinating task and the related duties is determined by the number of persons who must be transported, the schedule to be adhered to, the number and variety of vehicles to be used, etc. Frequently, this job is assigned to volunteers (Pomeroy, 1964). However, where large groups are involved, one person will probably be needed as a full-time coordinator. Whether a full-time, part-time, or volunteer transportation coordinator is needed will depend upon the size and the particular needs of the school. The concept of transportation coordinator has been successfully used in such localities as the Special School District in St. Louis County, Missiouri. In other instances, the transportation coordinator's duties have been assigned to the Special Education Director, special school principal or to a private transportation company. The transportation coordinator offers recommendations for policies and procedures that he believes will help in the overall operation of the program. He is responsible for the routing and scheduling of vehicles, as well as supervising the maintenance of buses and other vehicles. In addition, he will need the ability to work successfully with volunteer drivers, the paid staff, and drivers of taxicabs, as well as the parents of disabled children.

B. Financing. Transportation is a major budgeting item in any school system. It is particularly expensive where a disabled population is served. Aside from the normal operating costs of a transportation program, additional funds are necessary for the purchase, maintenance, and operation of specially adapted equipment.

It is the policy of many school systems to provide bus transportation for all children living more than one mile from school. However, from a practical point of view all physically handicapped children are transported no matter where they live (Wirtz, 1964). There are a number of possible ways in which a special school may finance its transportation program.

In the case of cooperative transportation programs, some states, such as Illinois, will reimburse the administrating district providing the transportation "one-half the cost of transportation up to $400 per child annually" (Graham, 1964, p. 23). Any costs above this amount are paid by the member districts in accordance with the provisions of a joint agreement between them. Unless a joint agreement is made, each district must transport its children at its own expense, to the central school (Graham, 1964). In North Dakota, local schools may request reimbursement from the state for funds expended for the transportation of children who must attend a special class outside of their own school district, not to exceed the amount of $25 per child per month (North Dakota Department of Public Instruction, 1966-67. Here, reimbursement for transportation is figured

on the basis of a formula which considers distance, necessity for special placement, and other factors. The state of California also reimburses school districts and county superintendents operating special programs for any costs over and above the amount required to operate a transportation program for a regular school. This excess expense is reimbursed in an amount not to exceed $475 per unit of average daily attendance (Gore & Outland, 1965).

A final example of financing a transportation system is the method used by New York State. Here, the New York State Department of Education, Bureau of Physically Handicapped Children, reimburses the child's local school district for 90 percent of the cost of transporting within a 20 mile radius. Beyond a 20 mile radius, the local county Family Court allocates the full transportation costs under the New York State Rehabilitation Act of 1963. In Suffolk County on Long Island, New York, the local districts do not get involved in financing the students' transportation; funds are provided by the county through the Board of Cooperative Educational Services (BOCES). It is believed that this system is highly efficient since the funding of transportation is left to a county-wide board which can coordinate among many local school districts. This system also minimizes the number of personnel involved for providing transportation.

An interesting sidelight to the problem of financing transportation concerns how the school can acquire those funds which it may have to contribute to its students' transportation, particularly for special programs. One resolution of this problem was found at Human Resources School where the Parents and Friends of Human Resources School, a group comparable to many parent-teacher associations, raised the additional funds necessary to transport students to the extended school year and camping programs conducted at the school during the summer (Feldman & Gentile, 1966; Switzer & Clarke, 1964). Other parent groups and fraternal organizations have played roles in providing funds to special schools. For example, the Cameron School, El Cerrito, California, has found such groups to be of help in financing special programs.

Finally, it is necessary to decide whether the school should operate its own transportation program or contract with a private company. The experience of Human Resources has indicated that it is not economical for a large school to operate its own transportation program. When all costs are considered; cost of vehicle, insurance, maintenance, driver and attendant salaries, etc., it is usually more economical to contract with a private company to provide transportation. For small schools with an enrollment of less than 100, or for special classes within regular schools it may be more economical for the school to operate its own transportation program.

Additional information regarding transportation may be found in the following sources: Cruickshank (1958a & 1958b); Institute of Physical Medicine and Rehabilitation (1962); International Society for the Rehabilitation of the Disabled (1961); Koenig (1955); National Safety Council (1964); Oakland Public Schools (1966-67); Recreation Center for the Handicapped (1965); Rigdon (1961); Ross and Ashby (1966); Tannhauser (1964); Toomey j Gazette (1965); University of Missouri (not dated); and Wallace (1955).

SUMMARY

In considering the transportation of disabled children to school the factors to be considered include type of vehicle used, the selection and training of drivers, the problem of time spent in travel, and the administration and financing of the operation.

Standard school buses are most satisfactory when they are used for transporting ambulatory or semi-ambulatory persons. Their advantages include their relatively low cost, ready availability, and large load capacity. However, they are not particularly useful for transporting severely disabled children, and can give rise to a number of problems. A school bus that has been adapted to provide a more efficient means of entrance and egress for disabled students and special safety features is much more satisfactory. The use of various types of lifts has been found to be an efficient means of facilitating the transportation of both students in wheelchairs and those who have difficulties in climbing into regular vehicles. Vans and compact buses can be readily adapted for transporting disabled students. They can be modified through the use of ramps or portable lifts. They are of limited capacity, however. Taxis appear to be quite suitable as a means of solving special transportation problems although quite costly, and outside vehicles such as the Checker cabs can be efficiently used. Finally, while standard automobiles and station wagons can be used, they usually prove to be not very satisfactory. The costs involved in using these several types of vehicles can vary greatly.

The selection, orientation, and training of the persons who drive the vehicles used by disabled students is of major importance. The drivers must meet several sets of qualifications and should be carefully trained. If volunteer drivers are used, it is important that they be required to meet the same qualifications as regular drivers, and that they be given the same training.

Problems may arise when disabled children spend much time traveling to and from school. When this is the case, attempts should be made to schedule the transportation in such a way as to minimize the time enroute. A second alternative is to attempt to make efficient use of the time.

Finally, problems of administration and financing have been discussed and several alternative procedures outlined. In general, these details will be dependent upon local and state rules and regulations.

REFERENCES

Bray, P., & Cunningham, D. M. Vehicles for the severely disabled. Rehabilitation Literature, 1967, 28 (4), 98-109.

Checker Motor Sales Corporation. New York, N.Y., 1967. (Brochure)

Chicago Board of Education. Special education in Chicago. Chicago: Author, 1964.

Connor, Frances, P. The education of crippled children. In W. M. Cruickshank & G. O. Johnson (Eds.), Education of exceptional children and youth. Englewood Cliffs, N.J.: Prentice-Hall, 1958. Pp. 429-497.

Corporation for Medical Engineering. Whittier, California, not dated. (Brochure)

Cruickshank, W. M. Current educational practices with exceptional children. In W. M. Cruickshank & G. O. Johnson (Eds.), Education of exceptional children and youth. Englewood Cliffs, N.J.: Prentice-Hall, 1958a. Pp. 43-93.

Cruickshank, W. M. The exceptional child in the elementary and secondary schools. In W. M. Cruickshank & G. O. Johnson (Eds.), Education of exceptional children and youth. Englewood Cliffs, N.J.: Prentice-Hall, 1958b. Pp. 94-144.

Feldman, M. A., & Gentile, F. D. An experimental extended school year program for the physically disabled. Albertson, N.Y.: Human Resources Center, 1966.

Fink, G. L. A study of the development and operation of a transportation system for severely permanently physically disabled students at the University of Illinois. Unpublished master's thesis, University of Illinois, 1962.

Gore, Beatrice E., & Outland, R. W. Educational programs for orthopedically handicapped children including the cerebral palsied in California schools. Sacramento: California State Department of Education, 1965.

Graham, R. State provisions for cooperative programs in Illinois, Michigan, California and New York. In F. E. Lord & R. M. Isenberg (Eds.), Cooperative programs in special education. Washington: Council for Exceptional Children & Department of Rural Education, National Education Association, 1964.

Gust, T. Operation: Handicapped student program. Columbia, Mo.: University of Missouri, 1966.

Handi-Ramp, Inc. Mundelein, Illinois, not dated. (Brochure)

Institute of Physical Medicine & Rehabilitation. Recreation: A new outlook. IPMR, 1962, 2 (3), 6.

International Society for the Rehabilitation of the Disabled. ISRD conference proceedings: The physically disabled and their environment. Stockholm, October, 1961.

Koenig, Frances G. The orthopedically handicapped. In Merle E. Frampton & Elena D. Gall (Eds.), Special education for the exceptional. Vol. 2. The physically handicapped and special health problems. Boston: Porter Sargent, 1955. Pp. 384-397.

Lord, F. E., & Isenberg, R. M. (Eds.) Cooperative programs in special education. Washington: Council for Exceptional Children & Department of Rural Education, National Education Association, 1964.

National Recreation Association. Recreation for the handicapped in the community setting. New York: Author, 1965.

National Safety Council. Vehicles for transporting handicapped children. Chicago: Author, 1964.

North Dakota Department of Public Instruction. Guide to special education in North Dakota. Vol. 1. Review of special education programs. Bismark: Author, 1966-67.

Oakland Public Schools. Development center for handicapped minors, 1966-67, Oakland, California. (Mimeographed)

Oakland Unified School District. Oakland public schools program for orthopedically handicapped children, 1967, Oakland, California. (Mimeographed)

O'Brien, Cleone. Their education.... Is your child exceptional... different from other children? Springfield, Ill.: Illinois Congress of Parents and Teachers, 1961.

Pomeroy, Janet. Recreation for the physically handicapped. New York: Macmillan, 1964.

Recreation Center for the Handicapped. Fact sheet, 1965, San Francisco, California. (Mimeographed)

Rigdon, Dorothy. Mecca for disabled students. Rehabilitation Record, 1961, 2 (6), 13-17.

Ross, S., & Ashby, N. A great school for handicapped children. Parade, Long Island Sunday Press, January 30, 1966, 8, 21.

Schoenbohm, W. B. Planning and operating facilities for crippled children. Springfield, Ill.: Charles C. Thomas, 1962.

Schweitzer, M. D. Education of the muscular dystrophy child. In Merle E. Frampton & Elena D. Gall (Eds.), Special education for the exceptional. Vol. 2. The physically handicapped and special health problems. Boston: Porter Sargent, 1955. Pp. 584-592.

Superior Coach Corporation. Lima, Ohio, 1967. (Brochure)

Switzer, R. M., & Clarke, Margaret. Camping for severely disabled children. Rehabilitation Record, September-October, 1964, 7-9.

Tannhauser, Mirian T. Instituting a public school program for the neurologically impaired child: criteria, programming, management. In J. Hellmuth (Ed.), The special child in Century 21. Seattle: Special Child Publications of the Seguin School, 1964.

Ted Hoyer & Company. Oshkosh, Wisconsin, not dated. (Brochure)

Toomey j Gazette. Chagrin Falls, Ohio, 1965, 8 (1).

University of Missouri. Handicapped student program. Columbia, Missouri, not dated. (Brochure)

Voelker, P. H. Administration and supervision of special education programs. In W. M. Cruickshank & G. O. Johnson (Eds.), Education of exceptional children and youth. Englewood Cliffs, N.J.: Prentice-Hall, 1958. Pp. 648-700.

Wallace, Helen M. The muscular dystrophies. In Merle E. Frampton & Elena D. Gall (Eds.), Special education for the exceptional. Vol. 2. The physically handicapped and special health problems. Boston: Porter Sargent, 1955. Pp. 564-573.

Wheelchair Elevators, Inc. Broussard, Louisiana, not dated. (Brochure)

Wirtz, M. A. A special district and multicounty unit plan. In F. E. Lord & R. M. Isenberg (Eds.), Cooperative programs in special education. Washington: Council for Exceptional Children & Department of Rural Education, National Education Association, 1964.

Wirtz, M. A. Something for the special child. American Education, 1965, 1 (6), 4-10.

Wortis, Helen, Z., & Margolies, Jeanette A. Parents of children with cerebral palsy. Medical Social Work, 1955, 4 (3).

APPENDIX

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